UNIVERSITY OF HAWAII
LIBRARY
LIBRARY USE ONLY

Analytical Biochemistry

An International Journal

EDITOR: *Alvin Nason*

ADVISORY BOARD:

Gary Ackers
Norman G. Anderson
Eraldo Antonini
Gilbert Ashwell
Samuel P. Bessman
Simon Black
Robert M. Bock
Robert L. Bowman
A. E. Braunstein
Melvin Calvin
Sidney Colowick
Frank Eisenberg, Jr
Jacques R. Fresco
Victor Ginsburg
I. C. Gunsalus
Harlyn O. Halvorson
William Z. Hassid
Osamu Hayaishi
Edward C. Heath
C. H. W. Hirs
Evan C. Horning
Rollin D. Hotchkiss
Walter L. Hughes
Ephraim Katchalski
Irving Klotz
Luis F. Leloir
Olov Lindberg
Feodor Lynen
Vincent Massey
Manfred M. Mayer
Bruce Merrifield
Marshall Nirenberg
Kazuo Okunuki
Alex Rich
Gerhard Schmidt
Michael Sela
Herbert A. Sober
Sol Spiegelman
Paul K. Stumpf
Sidney Udenfriend
Bert L. Vallee
Donald D. Van Slyke
Samuel B. Weiss
Theodor Wieland
George Wolf
W. A. Wood
Lemuel D. Wright
David A. Yphantis

VOLUME 34
1970

ACADEMIC PRESS
New York and London

Copyright © 1970, by Academic Press, Inc.

ALL RIGHTS RESERVED

No part of this volume may be reproduced in any form, by phrotostat, microfilm, by retrieval system, or any other means, without written permission from the Publishers.

Made in the United States of America

CONTENTS OF VOLUME 34

Number 1, March 1970

B. Boettcher and Frances A. De La Lande. On the Electrophoresis of Amylase in Gels Containing Starch 1

Ramon Lim and Ency Tadayyon. Fractionation of the Insoluble Brain Proteins with Acrylamide Electrophoresis 9

C. Grunwald. Quantitative Analysis of Free Phytosterols by Gas Chromatography Using Stationary Phase OV-101 16

Charles H. Chervenka. Long-Column Meniscus Depletion Sedimentation Equilibrium Technique for the Analytical Ultracentrifuge 24

Gerald Cohen, Dorothy Dembiec, and Judith Marcus. Measurement of Catalyse Activity in Tissue Extracts 30

M. Guarnieri, J. R. Mattoon, W. X. Balcavage, and C. Payne. A Rapid Semimicro Method for Production of Yeast Mitochondria 39

M. Bakri and J. R. Carlson. Chromatographic Separation of Tryptophan Metabolites 46

H. P. J. Bloemers, M. L. Stephenson, and P. C. Zamecnik. A Sensitive Micro Assay for Inorganic Pyrophosphatase . . 66

J. J. Coyotupa, K. Kinoshita, R. Y. Ho, C. Chan, W. Paul, M. Foote, and S. Kushinsky. Variable Decomposition by Environmental Contaminants in Air of Estrogens on Glass Plates Coated with Silica Gel for Thin-Layer Chromatography . . 71

K. Bergstrom, J. Gürtler, and R. Blomstrand. Trimethylsilylation of Amino Acids. I. Study of Glycine and Lysine TMS Derivatives with Gas-Liquid Chromatography-Mass Spectrometry 74

A. Ben-Aziz, S. Grossman, I. Ascarelli, and P. Budowski. Linoleate Oxidation Induced by Lipoxygenase and Heme Proteins: A Direct Spectrophotometric Assay 88

Pentti Ronkainen, Saara Brümmer, and Heikki Suomalainen. Determination of 2-Acetolactic Acid and 2-Aceto-2-hydroxybutyric Acid in a Fermented Solution by Gas Chromatography 101

T. E. Perardi and Norman G. Anderson. K-Series Centrifuges. III. Effect of Core Taper on Particle Capture Efficiency . . 112

J. R. Steeper and C. D. Steuart. A Rapid Assay for CDP Reductase Activity in Mammalian Cell Extracts 123

E. Voelkert and D. R. Grant. Determination of Homoserine as the Lactone 131

Howard S. Tager and Robert Zand. Use of Tartrate Buffers for

the Preparative Elution of Amino Acids from Ion-Exchange Columns 138
William Drell. Separation of Catecholamines from Catechol Acids by Alumina 142
Uno Lindberg and Lambert Skoog. A Method for the Determination of dATP and dTTP in Picomole Amounts . . . 152
Joseph Genovese, Klaus Schmidt, and Joseph Katz. Enzymic Degradation of Isotopically Labeled Compounds. I. Degradation of ^{14}C-Labeled Glycerol 161
Klaus Schmidt, Joseph Genovese, and Joseph Katz. Enzymic Degradation of Isotopically Labeled Compounds. II. Glucose Labeled with ^{14}C and Tritium 170
W. Ardelt, S. Ksienzy, Izabella Niedźwiecka-Namysłowska. Spectrophotometric Method for the Determination of Pancreatopeptidase E Activity 180
Kurt Randerath. An Evaluation of Film Detection Methods for Weak β-Emitters, Particularly Tritium 188
R. S. Steele, K. Brendel, Eleanor Scheer, and R. W. Wheat. Ion-Exchange Separation and Automated Assay of Complex Mixtures of Amino Acids and Hexosamines 206
Donald B. McCormick and Jerome A. Roth. Specificity, Stereochemistry, and Mechanism of the Color Reaction between *p*-Dimethylaminocinnamaldehyde and Biotin Analogs . . . 226
Allen T. Ansevin, Dennis E. Roark, and David A. Yphantis. Improved Ultracentrifuge Cells for High-Speed Sedimentation Equilibrium Studies with Interference Optics 237
David S. Auld and Thayer C. French. Cell for Spectrophotometric Titrations with Small Volumes 262

Short Communications

Thomas C. Bruice and J. R. Maley. Equilibrium Titration and pH-Stat Cell for a Cary 15 Spectrophotometer . . 275
Alkis J. Sophianopoulos. Optical Rotation System for the Analytical Ultracentrifuge 278
J. Berndt and O. Ulbrich. A Simplified Method for the Determination of Phosphoenolpyruvate Carboxykinase Activity 282
M. J. Modak, Shanta Modak, and Alamela Venkataraman. A Simplified MAK Column Procedure for the Separation of RNA Subfractions 284
John Lenard and Paul M. Gallop. Sequence Analysis of Microgram Amounts of Peptides by Mass Spectrometry 286
M. K. Zishka and J. S. Nishimura. Effect of Glycerol on Lowry and Biuret Methods of Protein Determination . 291

M. Aaron Benjaminson, Diane B. Hunter, Irwin J. Katz, and Nicholas M. Satriano. Purified Fluorescent Enzymes: Preparation of Large Batch Quantities . . 298

Addendum 301

Erratum 302

Number 2, April 1970

Ian C. Caldwell and J. Frank Henderson. Isolation of Nucleotides, Nucleic Acids, and Protein from Single Tissue Samples by a Phenol Technique 303

Michael D. Garrick, Richard H. Balzer, Jr., and James P. Charlton. An Improved Method for Electrophoretic Characterization of Globin Chains from Hemolyzates, Purified Hemoglobins, and Fractions Selected from Chromatographic Separations of Chains 312

F. J. Oelshlegel, Jr., J. R. Schroeder, and M. A. Stahmann. A Simple Procedure for the Basic Hydrolysis of Proteins and Rapid Determination of Tryptophan Using a Starch Column 331

E. W. Haeffner. A New and Rapid Method for the Isolation of Enzymically Prepared Labeled L-α-Glycerophosphate . . 338

A. Stoessl and M. A. Venis. Determination of Submicrogram Levels of Indole-3-acetic Acid: A New, Highly Specific Method 344

Charles E. Morreal, Thomas L. Dao, and Patricia Lonergan. A Method for the Separation of Polar Androgens from Estrogens 352

V. N. Schumaker, A. Wlodawer, J. T. Courtney, and K. M. Decker. Ultracentrifugation at Moderate Pressures . . . 359

Melvin Levine, Frederic E. Dorer, Joseph R. Kahn, Kenneth E. Lentz, and Leonard T. Skeggs. Chemical Determination of Hog Kidney Renin by an Automated Method 366

J. A. Blair and K. J. Saunders. A Convenient Method for Preparation of *dl-5*-Methyltetrahydrofolic Acid (*dl-5*-methyl-5,6,7, 8-tetrahydropteroyl-L-monoglutamic acid) 376

Harry W. Duckworth and Joseph E. Coleman. Determination of Metals in 100 μl Sample Volumes by Atomic Absorption Analysis Using the "Spike-Height" Method of Absorbance Measurement 382

Fernand Dray and Irving Weliky. Identification of O-Methyloximes of Ketosteroids by Gas Chromatography, Thin-Layer Chromatography, Mass Spectra, and Kinetic Studies . . . 387

J. M. Trifaró and J. Dworkind. A New and Simple Method for the Isolation of Adrenal Chromaffin Granules by Means of an Isotonic Density Gradient 403

Bruce Chabner and David Livingston. A Simple Enzymatic Assay for Pyridoxal Phosphate 413
J. E. Watkin and R. A. Miller. Quantitative Measurement of Protein in Disc Electrophoresis by Direct Ultraviolet Absorbance 424
C. R. Parish and J. J. Marchalonis. A Simple and Rapid Acrylamide Gel Method for Estimating the Molecular Weights of Proteins and Protein Subunits 436
C. E. Colombini and E. E. McCoy. Rapid Thin-Layer Electrophoretic Separation and Estimation of All Vitamin B_6 Compounds and of Some 5-Hydroxyindoles 451
Myron Jacobson and Charles Hedgcoth. Determination of 5,6-Dihydrouridine in Ribonucleic Acid 459
George K. Hanasono, Jerry L. Hollis, and Sorell L. Schwartz. A Pressure Vessel for Biochemical Studies under Hyperbaric Conditions 470
D. K. Kidby. A Simple Gradient Mixer and Its Application to Small Polyacrylamide Gel Columns 478
Jens Steensgaard and Robin J. Hill. Separation and Analysis of Soluble Immune Complexes by Rate-Zonal Ultracentrifugation 485
M. W. Fanger and D. G. Smyth. The Determination of Glucosamine and Galactosamine 494
Donald A. Gerber. Determination of Histidine in Serum with o-Phthaldialdehyde 500
B. B. L. Agrawal and E. Margoliash. A Spectrophotometric Method for the Determination of Aminotriazole and Other Aromatic Amines 505
Helga Hirsch-Kolb, Helmut J. Kolb, and David M. Greenberg. Determination of Binding Properties of Low Molecular Weight Substances to Proteins Using Ultracentrifugation 517
Abbas E. Kitabchi and Louise C. Kitchell. A Simplified Fluorometric Method for Determination of Blood Cortisol Using Phase-Separating Filter Paper 529
Robert Goodrich and F. J. Reithel. Macromolecule Dry Weight Determination with a Vacuum Balance 538
Bruce E. Morton and Carl A. Hirsch. A High-Resolution System for Gradient Analysis 544
Frederick H. White, Jr., and Calvin R. Mencken. Construction of a Pressure-Resistant Flow Cell of High Efficiency for Scintillation Counting with Accelerated Amino Acid Analysis 560
James F. O'Hanlon, Jr., Helen C. Campuzano, and Steven M. Horvath. A Fluorometric Assay for Subnanogram Concentrations of Adrenaline and Noradrenaline in Plasma . . . 568

R. M. Roberts and K. C. Tovey. A Critical Study of the DEAE Paper Disc Technique Used in Radiochemical Enzyme Assays 582

Short Communications

Harold L. Rosenthal and Wanda A. Sobieszczanska. Influence of Reducing Sugars on Protein Determination by the Lowry Procedure 591

W. Duane Brown and Suzanne Green. Removal of Proteins from Isoelectric Focusing Media 593

E. Kaiser, R. L. Colescott, C. D. Bossinger, and P. I. Cook. Color Test for Detection of Free Terminal Amino Groups in the Solid Phase Synthesis of Peptides 595

Author Index 599

Subject Index 601